



**africa**  **enablers**

alternative energy  
strategies for africa

# Financing Renewable Energy in Africa

1. Types of financing by investment size

2. Corporate finance vs. project finance

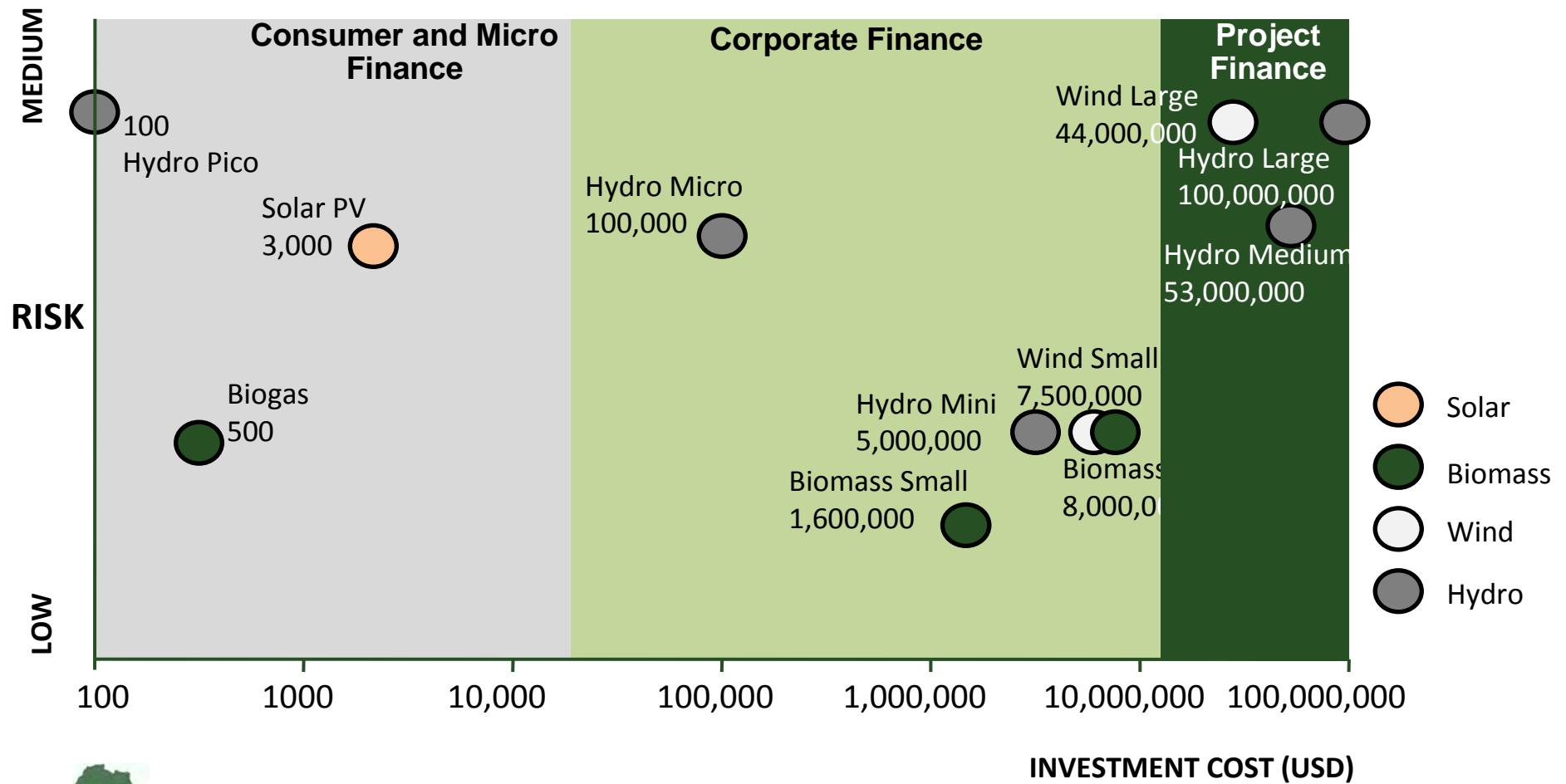
3. International funding sources

4. Finance examples wind power in Africa

5. africa enablers

# Project size is the primary determinant of financing structure

Financing structures for renewable energy investment, UK 1998



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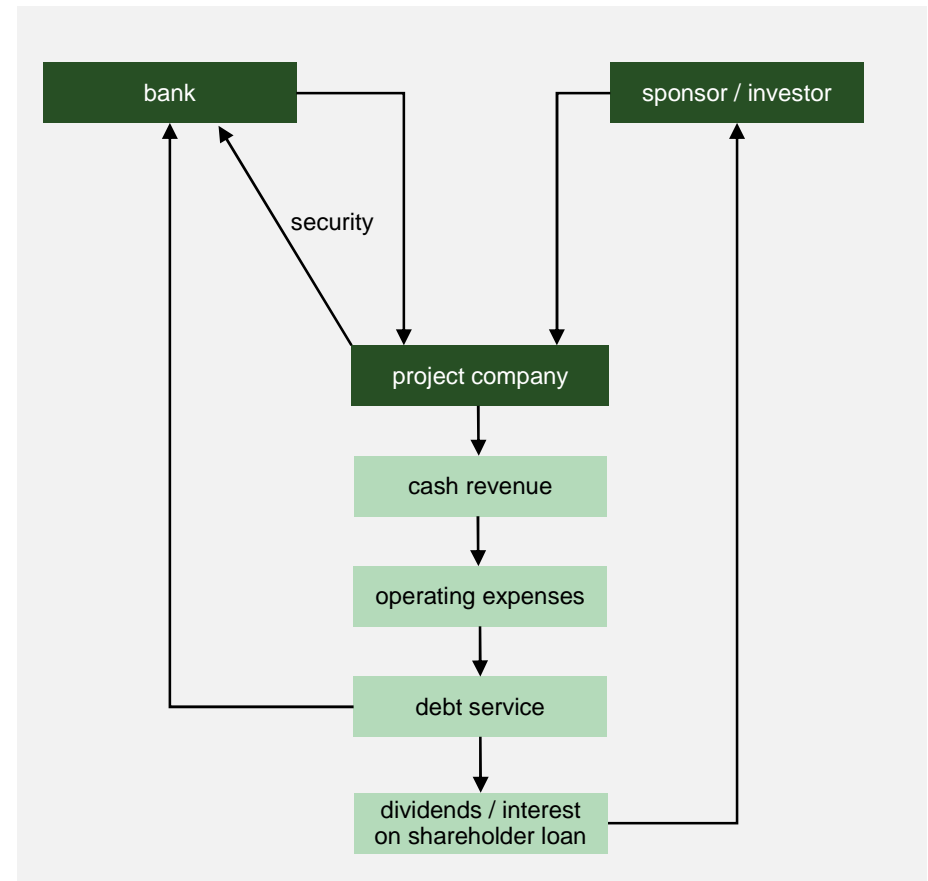
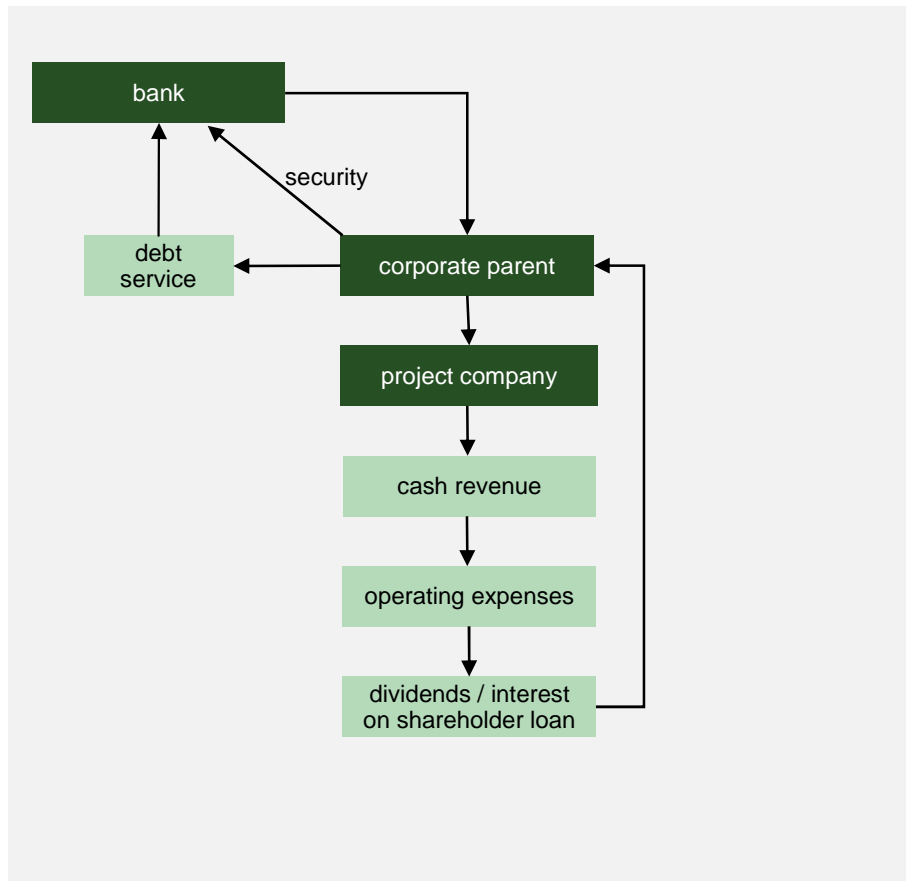
# Project finance requires significantly more bank scrutiny

**Corporate finance** is the finance of investments undertaken by business enterprises backed by the balance sheet and cash flows of this enterprise.

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**Project finance** is the long term financing of infrastructure and industrial projects based upon the projected cash flows of the project.

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# With a large, willing and competent parent - choose corporate finance

## Corporate Finance

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- Parent company on the hook, irrespective of the success
- requires creditworthy parent

### Pro:

- If the parent company has solid banking relationship, corporate finance can be very quick
- Security, liquidity and information availability reduce cost of debt and equity

### Con:

- More difficult for multi-parent or multi-investor situation
- Limited to approx. 30% of parent company balance sheet

## Project Finance

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- Debt is sized to be repaid from the cash flow generated by the project and secured by the project's assets.
- The bank will scrutinize the project plans in detail, almost like an owner

### Pro:

- Available for projects that are very large
- or where there is no parent
- Multiple sponsors possible

### Con:

- Longer, more expensive process
- Transaction costs can only be justified for projects > USD 20 million
- Need to recruit equity sponsor

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# Higher cost finance is more abundant; DFIs are key players

## Project financing source and terms

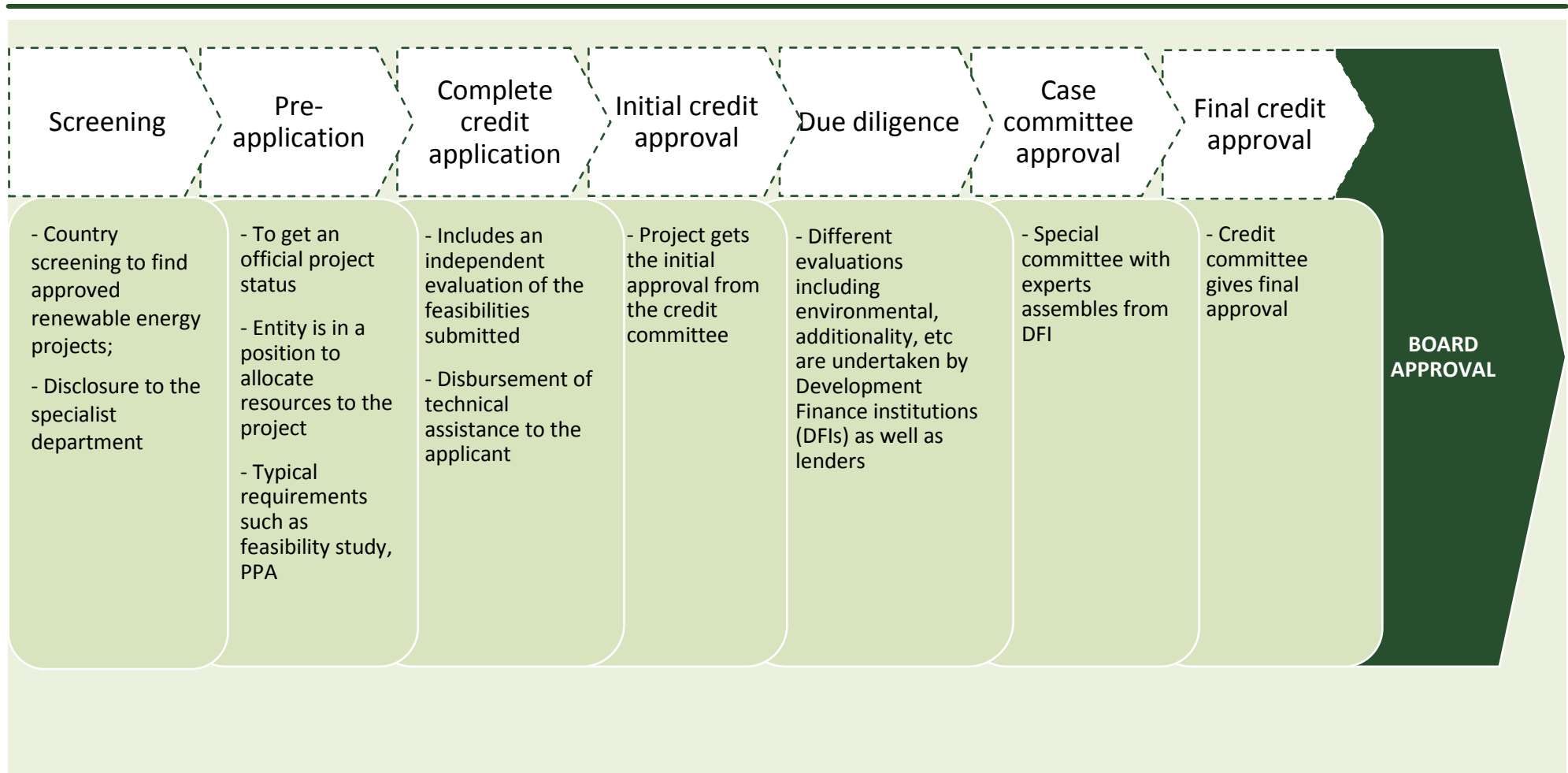
Source of finance	cost / rate of interest	amortisation / grace	typical providers	conditions
Grants	<ul style="list-style-type: none"> <li>▪ none</li> </ul>	<ul style="list-style-type: none"> <li>▪ none</li> </ul>	<ul style="list-style-type: none"> <li>▪ governments</li> <li>▪ DFIs</li> </ul>	<ul style="list-style-type: none"> <li>▪ for emerging economies</li> <li>▪ bilateral or multilateral agreements</li> </ul>
Concessional loans	<ul style="list-style-type: none"> <li>▪ low</li> </ul>	<ul style="list-style-type: none"> <li>▪ long</li> </ul>	<ul style="list-style-type: none"> <li>▪ DFIs</li> <li>▪ ECAs</li> </ul>	<ul style="list-style-type: none"> <li>▪ for emerging economies</li> <li>▪ bilateral or multilateral agreements</li> </ul>
Commercial loans	<ul style="list-style-type: none"> <li>▪ medium</li> </ul>	<ul style="list-style-type: none"> <li>▪ medium</li> </ul>	<ul style="list-style-type: none"> <li>▪ ECAs</li> <li>▪ comm. Banks</li> <li>▪ DFIs</li> </ul>	<ul style="list-style-type: none"> <li>▪ negotiated between project owner and banks</li> </ul>
Equity	<ul style="list-style-type: none"> <li>▪ high</li> </ul>	<ul style="list-style-type: none"> <li>▪ very long</li> </ul>	<ul style="list-style-type: none"> <li>▪ fin. investors</li> <li>▪ DFIs</li> </ul>	<ul style="list-style-type: none"> <li>▪ economic viability</li> </ul>



Fund name	Size of funds	Type of funding
<b>Adaptation Fund</b>	USD 300 - 500 mln by end 2012	Grant
<b>Forest Carbon Partnership Facility</b>	USD 447 mln - USD 232 mln for readiness fund and USD 215 mln for the Carbon fund	Carbon financing, Grants
<b>UN Global Environment Facility Trust Fund</b>	USD 250 mln per year	Grants and cofinancing
<b>EU Global Climate Change Alliance</b>	140 Euros in 2010	Grant, ODA*, Technical assistance
<b>Hatoyama Initiative - now Japan's fast start finance</b>	USD 15 bln	USD 11 bln – public; USD 4 bln - private fundings Grants, loans, ODA, Technical assistance-, also equity financing and export insurance & subsidies
<b>International Climate Fund</b>	GBP 2.9 bln till 2015	NA
<b>International Climate Initiative</b>	- Total of 120 mEUR per year	Grants and loans
<b>MDG Achievement Fund</b>	USD 89.5 mln - climate change funds	Grant, ODA
<b>Least Developed Countries Fund</b>	USD 10 -12 mln per LDC - includes 48 countries	Grants, Cofinancing
<b>Special Climate Change Fund</b>	USD 200 mln, USD 50 mln available under Technology transfer funds	Grants, Cofinancing
<b>Clean Technology Fund</b>	>USD 625 mln - channeled through AfDB, total size of USD 1.9 bln	Concessional loans, limited grant, equity and subordinate debt
<b>Strategic Climate Fund</b>	USD 180 mln for each pilot country	Mainly loans
<b>UN-REDD Programme</b>	USD 30 bln per year	Grant and technical assistance

# Only convincing projects make it through the bank vetting process

## Project financing steps and terms in international banking practice



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# Lake Turkana is financed as an independent power producer or “IPP”

## Lake Turkana Wind Power Project

### Project Summary

- 365 turbines (310 MW installed) power generating 1,500 GWh per year
- 780 million USD investment volume
- adds approximately 25% to the current generation capacity
- 428 km, 400 kV transmission line

### Major Project Partners

1. **KP&P:** Project Developer for LTWP
2. **KPLC:** power off-taker through I/t power purchase agreement
3. **Vestas Benelux B.V.:** Wind Turbine Technology Provider
4. **AfDB:** Leading the process of financing for LTWP
5. **Globeleq:** Equity provider for LTWP

### Project considerations

- Policy only provides a tariff for wind projects of 50MW and lower
- Negotiating a tariff with KPLC against hydro cost of 4 USD cent/kWh
- Negotiation result was 7.2Euro cents/kWh, approx. 9.6 US cents / kWh
- The will transfer part of the carbon credit (0.9 million tons p.a.) revenue to KPLC
- Separate investor for transmission line had to be found, delaying the project
- Land rights are difficult to secure in Kenya
- 150 km<sup>2</sup> were leased from the Marsabit County Council for 33 years, located in Loyiagalani, Laisami District
- Negotiations and approval processes have been taking relatively longer and external support was needed to facilitate parts of the discussions
- Equity provider was brought on board last.

# Aysha is financed as corporate finance with “EPC + finance”

## Aysha Wind Power Project

### Project Summary

- approx. 120 turbines with 120 MW installed power, generating 434GWh per year
- 261 million USD investment volume
- Located Eastern Ethiopia close to the Somali and Djibouti border, 0.5Km to 230kV transmission line
- adds approx. 5% to current capacity

### Major Project Partners

- 1. Lafto Turbine Technologies:** (an africa enablers company) project Developer and arranger and co-EPC contractor
- 2. EEPCo:** Ethiopian electricity utility as EPC-employer, borrower and wind farm owner
- 3. Turbine Manufacturer:** [currently being selected]
- 4. MIGA, commercial banks and local banks:** provide finance

### Project considerations

- No feed-in tariff
- Lowest electricity end-user prices in Africa puts pressure on low-cost delivery of generation
- In spite of the size, the government sought a corporate finance solution, based on EEPCo as the owner and borrower
- EEPCo balance sheet is not strong so that the government had to back EEPCo’s financial responsibilities
- Uncertainty about the location of the bureaucratic ownership of the project
- Land rights no issue due to low population density on site and government ownership of all land
- Poor balance of payments situation requires high local content but local manufacturing capacity is not fully transparent.
- Access to the facilities of the local companies

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# africa enablers brings affordable, large scale alternative energy where its impact is greatest: to emerging economies in Africa

## africa enablers offering

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### Project Development

- market entry assessment
- site scouting and project scouting, including for CER forward contracting
- project management up to and through construction / erection
- local sourcing and technology transfer

### Financial Advisory

- financial and economic feasibility assessment
- equity structuring and fundraising
- debt fundraising, structuring and bank negotiations
- broad relationships in both private and public sector

### Policy Advisory

- feed-in-tariff design and validation
- public-private-partnership design and implementation
- development of industrial structures including renewable technology transfer
- CDM & CER program management

## experience

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### Project Development

- development of 300MW site in Eastern Ethiopia as EPC + financing for the local power monopolist EEPCo
- Scouting of 50 MW wind farm site in Djibouti
- 300 MW wind power developments in a variety of European countries, of which 200 MW owned and operated, through related company

### Financial Advisory

- currently looking for renewable energy investment projects, 10-100MW, for European investors
- € 20 mm equity and debt fundraising for local African wind power component maker
- launched an African infrastructure finance conference with private & public sector financial institutions participating

### Policy Advisory

- three-year, €1.8 mm wind power industry development PPP co-funded by GIZ.
- expert advice on draft law for feed-in tariff
- industry study on wind power impact on manufacturing sector

# africa enablers is managed by international experts in project finance, technology transfer and project development

**Dr. Philipp Schuller, Partner**



Dr. Schuller is an infrastructure investment manager and finance specialist with over 20 years of experience. For seven years, he built the German business for Terra Firma, the London-based multi-billion private equity group. More recently, he has been investing in and financing European SMEs. For 10 years he was with Deutsche Bank in Japan and Germany, for some time as the personal assistant to Deutsche's CEO Rolf-E. Breuer. Dr. Schuller has advanced degrees from Harvard University and Oxford University. In addition to africa enablers, he is partner at Deutsche Unternehmensfinanzierung, a financial advisory boutique in Frankfurt, Germany.

**Stephan Willms, Partner**



Mr. Willms has more than 10 years of experience in advising private companies and government institutions in international market entrance, growth strategies, innovation management and national branding. He has lived and worked in more than 15 countries in Africa, Asia, Europe and Latin America. He has a diploma (MA) in Business Administration and Spanish from Bayreuth University, Germany. In addition to africa enablers, Mr. Willms is Managing Director of LAFTO Turbines PLC, Addis Ababa, Ethiopia, a wind power plant developer and specialist for wind turbine assembly.

**Dr. Peer Ederer, Partner**



Dr. Ederer is a sought-after specialist for innovation, technology transfer and project development. He has over 20 years of experience in creating and managing technology-rich projects around the world and in creating the conditions for sustainable and rapid business growth. Initially, he worked for McKinsey & Co. specializing on issues of technology management and business growth. Dr. Ederer studied Business Administration at Sophia University in Tokyo and at Harvard Business School. He holds a PhD from the University of Witten-Herdecke. In addition to africa enablers, Dr. Ederer is founder and director of the Innovation&Growth Academy.

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